S
628.05
W3b 1983
Summer
c.2

Big Sky
Clearwater

PLEASE RETURN

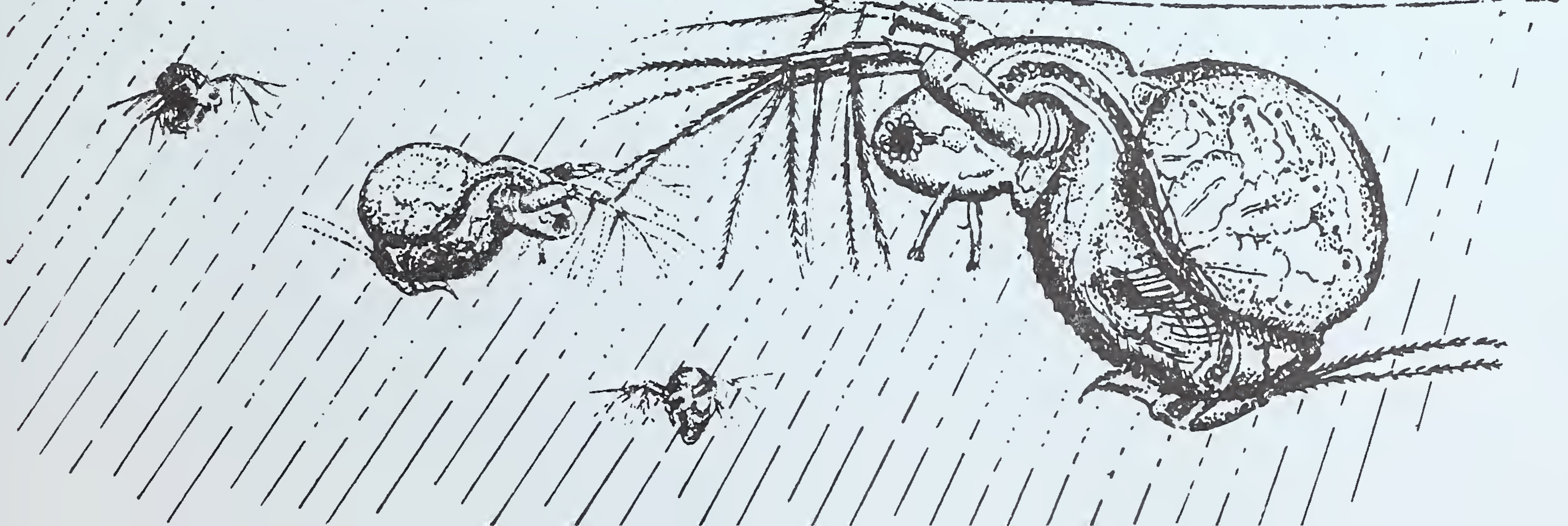
SUMMER 1983

Water School Issue

STATE DOCUMENTS COLLECTION
SEP 14 1983
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

Moina Causes Red Lagoons

See Article Inside



Montana State Library
3 0864 1006 7345 1

The Big Sky Clearwater--for water and wastewater-treatment operators across Montana--is published two times a year by the Water Quality Bureau of the State Department of Health and Environmental Sciences in cooperation with the Montana Section American Water Works Association and the Montana Water Pollution Control Association.

Editor: Tim Hunter
Graphics: Erich Weber
Typist: Rosa Lawton
Publications Committee Chairman: Tim Hunter

Publication dates: March 1 and August 1. Last date to receive contributions is 21 days before publication. Mail contributed material to Tim Hunter, Water Quality Bureau, Department of Health & Environmental Sciences, Room A206, Cogswell Building, Helena, MT 59620.

School Celebrates Anniversary

Bozeman Conference Turns 50

The 50th annual school for water and wastewater operators and managers will be held September 26-29, 1983 at the Strand Student Union Building in Bozeman. Fifty years ago, in 1933, the first water school was held at Montana State College (now MSU). At that time there were only a few treatment facilities in Montana and there was no operator certification program. The schools lasted for two days and dealt "with such matters as pumping and power costs and methods, pipe line problems, and problems dealing with the collection, purification, and distribution of public drinking water suppies."[1] By 1955, there were 16 sewage stabilization ponds in Montana, and today we have hundreds of treatment facilities and almost 1200 certified water and wastewater operators. This year the school will be filled with useful and practical information for those who attend, and we will have some special activities to commemorate 50 years of Water Schools. The cost of the school is $45.00 again this year. Register when you arrive in Bozeman. We'll see you there!

PRELIMINARY PROGRAM

MONDAY MORNING, SEPTEMBER 26 (JOINT SESSION)

7:30 - 8:30 a.m.	Registration (Ballroom A)
8:30 a.m.	Welcome
8:45 a.m.	Remembrances--50 Years of Water Schools
9:30 a.m.	The Operator Certification Program
10:00 a.m.	Break
10:30 a.m.	Public Relations and Communication
11:45 a.m.	Lunch

MONDAY AFTERNOON, SEPTEMBER 26 (SPLIT SESSIONS)

Water

1:00 p.m.	School Objectives
1:15 p.m.	Water Treatment Overview
2:00 p.m.	Lecture and Guided Tour of Water Treatment Facilities
4:30 p.m.	Session for Operator Study (SOS)

Wastewater

1:00 p.m.	School Objectives
1:15 p.m.	Wastewater Treatment Overview
2:00 p.m.	Lecture and Guided Tour of Wastewater Facilities
4:30 p.m.	Session for Operator Study (SOS)

TUESDAY MORNING, SEPTEMBER 27 (JOINT SESSION)

8:00 a.m.	Pump Selection, Operation, and Maintenance
10:00 a.m.	Break (split sessions follow break)

---

[1] 19th Biennial Report of the Montana State Board of Health

Water

10:30 a.m.	Water Distribution Systems (Valves, Pipe, Hydrants)
11:45 a.m.	Lunch

Wastewater

10:30 a.m.	Coliform Analysis for Wastewater Operators
11:45 a.m.	Lunch

TUESDAY AFTERNOON, SEPTEMBER 27 (SPLIT SESSIONS)

Water

1:00 p.m.	Coliform Analysis for Water Operators
2:00 p.m.	Home Water Filters
2:45 p.m.	Break (Joint Session Follows Break)

Wastewater

1:00 p.m.	Wastewater Collection System Maintenance
2:45 p.m.	Break (joint session follows break)

(Joint Session)

3:00 p.m.	The Biology of Water and Wastewater Treatment
4:00 p.m.	SOS

WEDNESDAY MORNING, SEPTEMBER 28 (JOINT SESSION)

8:00 a.m.	Energy Conservation in Water and Wastewater Treatment
10:00 a.m.	Break (split sessions follow break)

Water

10:30 a.m.	Application of Jar Testing to Water Treatment Plant Operations
11:45 a.m.	Lunch

Wastewater

10:30 a.m.	Wastewater Lagoon Operation
11:45 a.m.	Lunch

WEDNESDAY AFTERNOON, SEPTEMBER 28 (SPLIT SESSIONS)

Water

1:00 p.m.	Operation and Maintenance of Wells
3:00 p.m.	Break
3:15 p.m.	Fluoridation of Drinking Water
4:30 p.m.	SOS

Wastewater

1:00 p.m.	Activated Sludge Process Control
3:00 p.m.	Break
3:15 p.m.	Process Control (continued)
4:30 p.m.	SOS

THURSDAY MORNING, SEPTEMBER 29 (JOINT SESSION)

8:00 a.m.	Safety Equipment Presentation
10:00 a.m.	Break (split sessions follow break)

Water

10:30 a.m.	Water Filtration, Process, and Operations
11:45 a.m.	Lunch

Wastewater

10:30 a.m.	Montana's Discharge Permit Program
11:00 a.m.	Preventive Maintenance at Wastewater Treatment Plants
11:45 a.m.	Lunch

THURSDAY AFTERNOON, SEPTEMBER 29 (JOINT SESSION)

1:00 p.m.	Giardia in Water Supplies--Occurrence, Detection, Treatment
2:30 p.m.	Certificate Awards
3:00 p.m.	School Dismissal

FRIDAY MORNING, SEPTEMBER 30

8:30 a.m.	Certification Exam

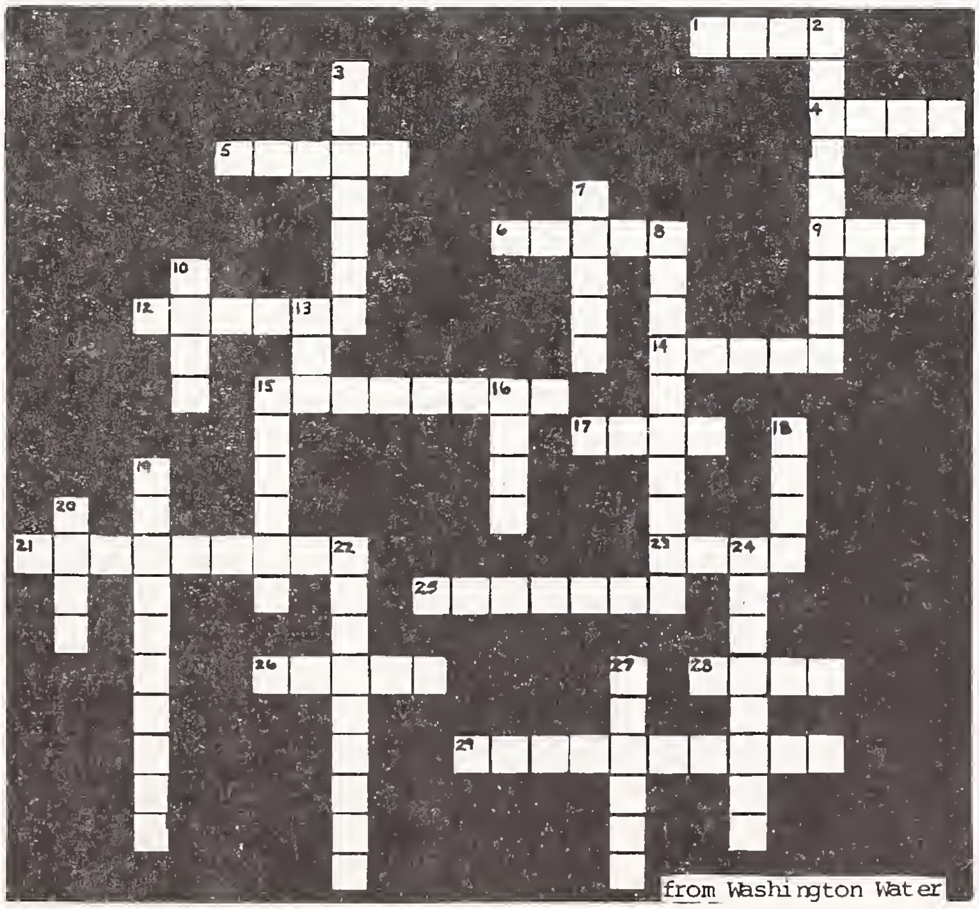
Crossword Puzzle

ACROSS

1. Samples should be collected from the ______________ water tap.
4. When sampling, the line on the bag which indicates a full 4 oz. sample.
5. Winged animals, sometimes contaminating wooden reservoirs.
6. The number to be filled in to the left of turbidity (abbr.).
9. The sampling tap is allowed to __________ several minutes before collection.
12. There are five __________ in the zip code.
14. Be sure the cap is ___________ before drying the outside, packaging and mailing the samples.
15. All parts of the slip marked in red are to be ________ before returning to the lab.
17. When collecting check or follow up sampling, both should be from the ___________ location.
21. The person who does the sampling (see clue 18 down).
23. Small rodents often in need of better swimming coaches.
25. The prepared bottles or whirl pack bags are ________; take care not to contaminate them.
26. The type of sample also known as a follow up.
28. A long hole surrounded by metal centered around the hole.
29. On the back of the yellow copy of the slip, significance of the _________________ results.

DOWN

2. If more than one regular sample is collected on a single day, they must be collected from __________ places.
3. On your mailing label, and also goes in slip's lower left corner.
7. Organisms from the coliform _______ are indicators of possible contamination.
8. The information to be placed on the top line of the form.
10. A non-animal source of reservoir contamination.
11. Sample should be sent to the lab __________ in the week, or samples should be sent to the lab ________ in the month.
13. An unsatisfactory sample needs to be followed up with ____#____ check samples from the same source.
15. The political subdivision of the state that usually employs sanitarians.
16. The collection __________ must be on the slip and should be on the bottle label.
18. Along with the collection time, location and collector's name, the _________ of collection is the most important information on the slip.
19. To disinfect a water system with bleach or HTH.
20. When there has been a deficiency in sampling, it is necessary to ___________ notices in public places.
22. Large storage container for water occasionally contaminated by dirt, water loving birds or poorly trained swimming mice.
24. The general type of bacteria looked for in water samples.
27. When collecting a sample from a tap with a _________, remove it first or use an alternate tap.



from Washington Water

Red Lagoon Mystery Solved

by Loren Bahls, Ph. D., Water Quality Bureau

Summertime Trouble

Every summer, lagoon operators across Montana from Colstrip to Kevin report that their lagoons are turning red and ask what to do about it. And every summer our so-called experts here at the Water Quality Bureau scratch their heads in wonder. That is, until this summer.

In July, lagoon operators at Kevin (north of Shelby) and at a missile site south of Great Falls sent samples of their red plagues to Bureau biologists. In both cases the organism responsible for the red color proved to be a small crustacean (shrimp) called Moina brachiata, of the group called water fleas.

A Flea or not a Flea

Water fleas are not fleas at all, or even insects. They are more closely related to crayfish, prawns, and lobsters. They do not suck blood, bite, sting, or carry disease, and, as far as we know, pose no threat to public health. The red color results from a pigment imbedded in the carapace and the body tissues.

Like most aquatic animals, water fleas grow and multiply in response to favorable temperatures and a plentiful food supply. At the missile site lagoon, Moina was grazing on a bloom of Oocystis, a common green alga in sewage lagoons. Six kinds of green algae were identified in the Kevin lagoon. Both lagoon samples had lots of bacteria, which biologists think are just as important as algae, protozoa, and organic detritus as food for water fleas.

Sign of Good Water

Water fleas are a good sign in lagoons: they usually mean that the lagoon is well aerated and that toxic compounds, like ammonia, are not present in excess. In fact, water fleas are so sensitive to environmental pollutants that they are routinely used to conduct bioassays on wastewater effluents. They are just about as sensitive as trout and much easier to culture and use in the laboratory.

Water fleas are found in just about every body of standing water--large and small, temporary and permanent. If they're not present in a lagoon, chances are something in the wastewater (like ammonia) is inhibiting them.

Large numbers of water fleas may actually reduce pollutant loads in lagoon discharges. John Campbell, chief operator of the Polson lagoon system, recently reported a decline in effluent concentrations of BOD, TSS, and coliforms following a buildup of Daphnia magna, another species of water flea. This decline in pollutants is probably the direct result of water flea grazing.

Certain algae (Euglena and Peridinium) and other kinds of crustaceans (Copepods and Ostracods) are also known to color standing waters in Montana red. Biologists at the Water Quality Bureau would like to know whether these other organisms color Montana lagoons red, too. If you have a red lagoon and would like to know the culprit, send a sample to the author at the Water Quality Bureau, Room A-206, Cogswell Building, Helena, Montana 59620. The editor also invites you to share your observations on how water fleas affect lagoon performance.

In Summary

In summary, red lagoons are not a problem. The animals that color the water red are not just indicators of good water quality, they also may help to achieve an advanced level of wastewater treatment.

So what should you do if your lagoon turns red? Nothing. Let nature take its course, and impress your friends by telling them, "Oh, its probably just a bloom of Moina brachiata."

Certification Exams

Examinations for certification as Water Distribution Operator, Water Plant Operator, and Wastewater Plant Operator will be administered

Friday, September 30, 1983,
8:30 a.m. - 12:30 p.m.
Strand Student Union Building,
MSU Campus
Bozeman, Montana.

The examinations will be given at the conclusion of the annual Water School to be held on the MSU campus September 26-29. Attendance at the school is not required in order to take a certification examination. However, those who plan to take examinations should notify the certification office and submit applications and fees before September 16, 1983.

Those who hold temporary certificates for Class 1, 2, and 3 operators are required to take their examinations on September 30 unless a valid excuse is submitted to the certification office.

Correspondence Courses

California State University, Sacramento, has recently completed two new operator training manuals titled Water Treatment Plant Operation and Water Supply System Operation. Emphasis in these manuals is placed on knowledge and skills that water operators need to know to successfully operate and maintain their systems. This includes information on wells, small treatment plants, storage facilities, distribution systems, disinfection, safety, lab procedures and water treatment arithmetic problems.

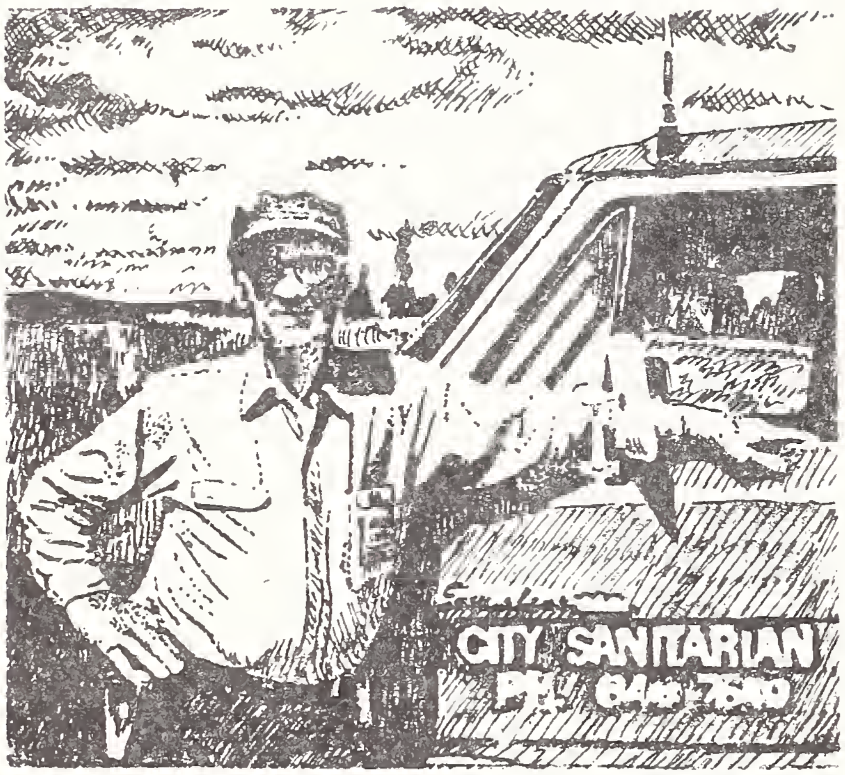
Clemson University in South Carolina has also developed several new correspondence courses. Their most recent offerings include a two part course. Part one deals with package wastewater treatment plants and part two is on stabilization ponds. The Clemson manuals are based on EPA operations manuals and present useful and timely information for operators of these types of systems.

The California State University courses are available for $30.00. The Clemson courses cost $15.00. For further information contact:

Patsy A Phillips
Operator Training
Clemson University
401 Rhodes Center
Clemson, SC 29631
(803) 656-3276

Ken Kerri
California State University,
Sacramento
6000 J Street
Sacramento, CA 95819
(916) 454-6142

Operator Profile



Allen Lapp...West Yellowstone

by Tim Hunter, Water Quality Bureau

In 1966, West Yellowstone put in a new wastewater system. During the first year of operation many problems were encountered. In March of 1967, Allen Lapp went to work taking care of the system. Things haven't been the same since.

Allen Lapp was born in 1918 in Haxton, Colorado. He left Haxton at the age of 23 and spent a year in Idaho Falls, Idaho before settling down in West Yellowstone in 1948. Besides operating the wastewater plant, Allen owns and operates Lapp's Cabins. He rents out his 6 cabins on a nightly basis and usually has them filled during the summer. Allen also keeps his eye on the town's water storage tank to be sure there is enough fire fighting water at all times.

The wastewater system at West Yellowstone consists of comminutors, activated sludge extended aeration,clarifiers, a facultative lagoon and seepage moats for the effluent. Allen operates the system in three different modes or stages to match the flows and the seasons of the year. Stage 1 is winter operation during which only the lagoon is utilized. During Stage 2, springtime operation, the lagoon contents are recirculated to provide aeration and decrease odors. This is initiated at about the time the ice is coming off the lagoon. During Stage 3, summer operation, the activated sludge portion of the system is brought on line. The great influx of people to this tourist-oriented community in the summer causes a large increase in wastewater loading. When the tourists leave, Allen shuts down the activated sludge portion of the facility and returns to Stage 1 operation for the winter.

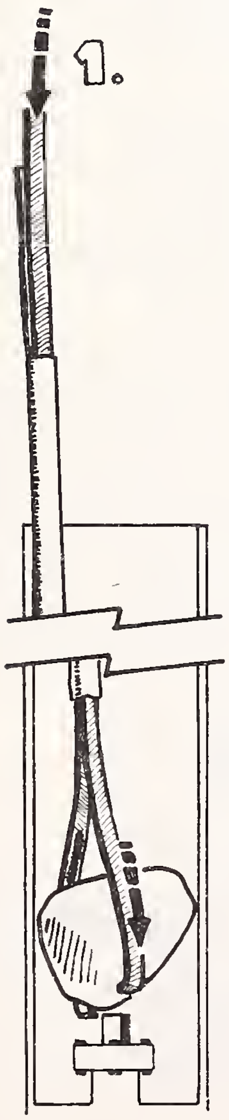
Over the almost twenty years Allen has worked for the Town he has often used his own knowledge and creativity to overcome the many problems that are encountered while operating a wastewater treatment system. He doesn't waste a lot of time trying to lay the blame for problems on someone else (like the design engineer, or the state). He just does the best he can to get things up and running. A few years back, when sludge scrapers for the clarifiers were needed, Allen found a couple of old automobile differentials, hooked them to electric motors, hooked up some scraper chains, and he had his sludge scrapers.

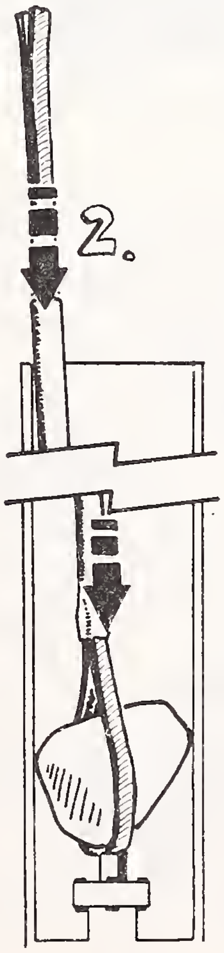
Allen has been an outstanding employee and a credit to the profession. We were sorry to hear, when researching this article, that Allen will be retiring soon. We will miss this inventive fellow. Good luck, Allen. Enjoy your retirement!

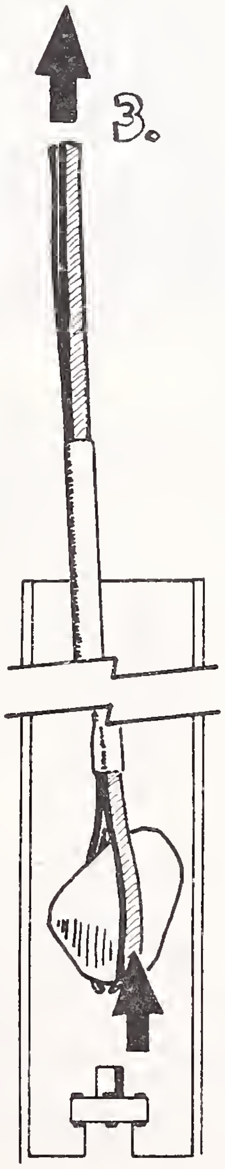
Rocks In Your Valve Box?

How do you turn a valve when there's a bunch of rocks down in the valve box? That's the question Joe Tillo, water system operator, asked soon after starting work with the La Casa Grande Water Company in East Helena. The answer he was given was to dig up the valve box. Joe's response to this suggestion was to quickly start to work on an idea for getting those rocks out without the suggested excavation work.

His invention is an oversized version of one of those little gadgets used to grab small auto parts when they are dropped into places which can't be reached. It is very simple to build and operate and it really really works. It consists of two long strips of 1/2 inch flat steel, bent on the ends to form jaws for grabbing rocks. On the inside surface of the jaws, Joe has attached some stair tread tape to give the needed friction. The two bars are run through a long piece of 1/2 inch conduit, which is crimped on the jaw end. To operate the device, someone points a flashlight down into the valve box. When a rock is spotted, the conduit is pushed up, leaving the jaws loose to be worked down around the rock (see Illustration 1). Once the rock is between the jaws, the conduit is pushed down causing the jaws to tighten around the rock (see Illustration 2). Then all that is left to do is lift the rock out (see Illustration 3). Thanks to Joe Tillo for sharing this great gadget with us!







CROSSWORD PUZZLE ANSWERS

Across
1. cold
4. fill
5. birds
6. CLRES
9. run
12. digits
14. tight
15. complete
17. same
21. collector
23. mice
25. sterile
26. check
28. pipe
29. laboratory

Down
2. different
3. address
7. group
8. system name
10. dirt
11. early
13. two
15. county
16. time
18. date
19. chlorinate
20. post
22. reservoir
24. coliform
27. screen

MAKE GOOD WATER HAPPEN

-- JOIN AWWA, WPCF

What are AWWA and WPCF? The American Water Works Association and the Water Pollution Control Federation are international non-profit societies which are dedicated to improving drinking water (AWWA) and water pollution control (WPCF) for people everywhere.

AWWA has approximately 32,000 members on this continent with 40 member associations in the United States. The Montana section of AWWA has 143 members at last count.

The Montana Water Pollution Control Association is one of 65 associations which comprise WPCF. MWPCA currently has over 100 members.

The best reason for joining either of these organizations is for access to the vast information network available. This information is obtained through contacts with fellow water and wastewater personnel as well as in the form of books, brochures, training package manuals, seminars, and workshops. Members of AWWA and WPCF receive the journal of their respective society as well as an operator-oriented supplement; "Opflow" for water operators, AWWA, and "Highlights" for wastewater operators, WPCF.

Other benefits of membership include discounts on publications, discounts on registration at WPCF and AWWA conventions and seminars, opportunities for making contact and meeting others in the field of water and wastewater and the opportunity to demonstrate your interest and dedication to water pollution control and/or safe drinking water in Montana.

Thanks to this year's membership chairmen for helping with this article. For further information and an application for membership in either group contact:

Steve Potts
MWPCA Membership Chairman
USEPA, Montana Office
Federal Building
301 South Park, Drawer 10096
Helena, Montana 59601
449-5486

Alan Towlerton
MSAWWA Membership Chairman
Public Utilities Department
City of Billings
P.O. Box 30958
Billings, Montana 59111
245-8989

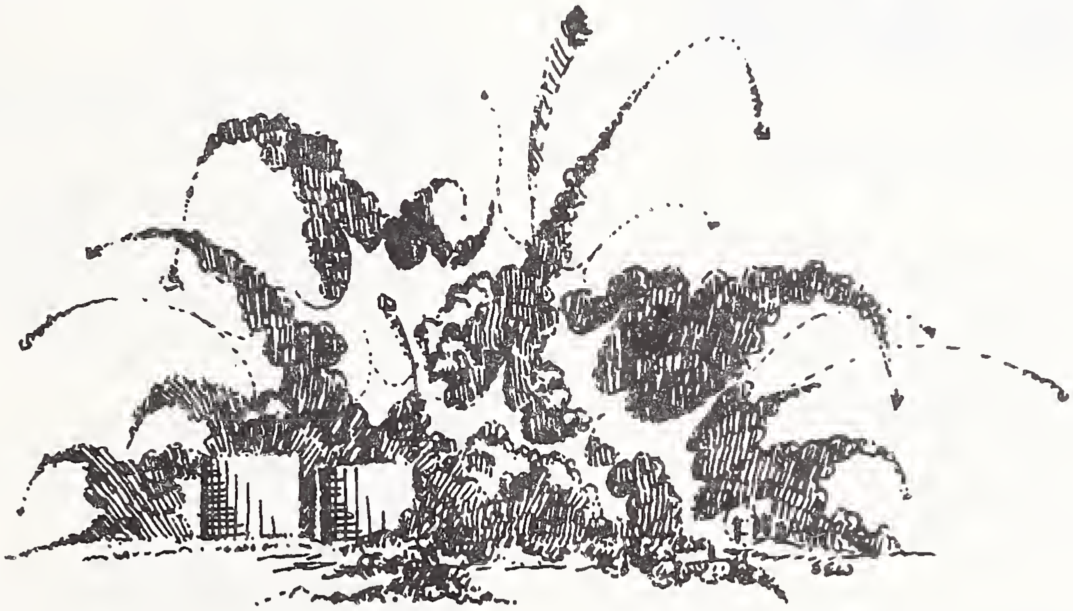
"REMEMBER WHEN THE FISH SMELLED WORSE THAN THE WATER ?"

Two Men Die in Sewage Blast

by Tim Hunter, Water Quality Bureau

On July 21, 1983, at 2:30 in the afternoon, the people of Chippewa Township, 25 miles northwest of Pittsburg, Pennsylvania were shocked by a blast that has been compared to an atomic bomb. The explosion occurred at the sewage treatment plant where two treatment plant workers were killed. The cause of this tragedy is unknown. A possible source of explosive gas, the anaerobic digestors, are the only part of the plant that remain standing. The explosion was so forceful that 80% of the 1 mgd-capacity trickling filter facility was leveled, and pieces of six-inch thick reinforced concrete walls were thrown hundreds of yards.

Residential areas near the treatment facility were evacuated following the explosion, and traffic on U.S. Highway 51 was rerouted to avoid the blast area. At least eight firemen were injured by chlorine gas fumes which were released by the explosion. Firemen remained on the scene following the disaster, to spray water on the digestors. This was done to slow the methane-producing organisms in the digestors and prevent the buildup of methane gas.



Township authorities are busily making arrangements for EPA construction grant funding to rebuild the facility. They expect to have a new plant on line within a year. Explosion experts are still trying to find out what caused the blast. If they ever figure it out, they intend to share their findings, so that similar tragedies can be avoided in the future.

Small Parts Storage

by R. B. Klausegger
Lake County Illinois Public Works

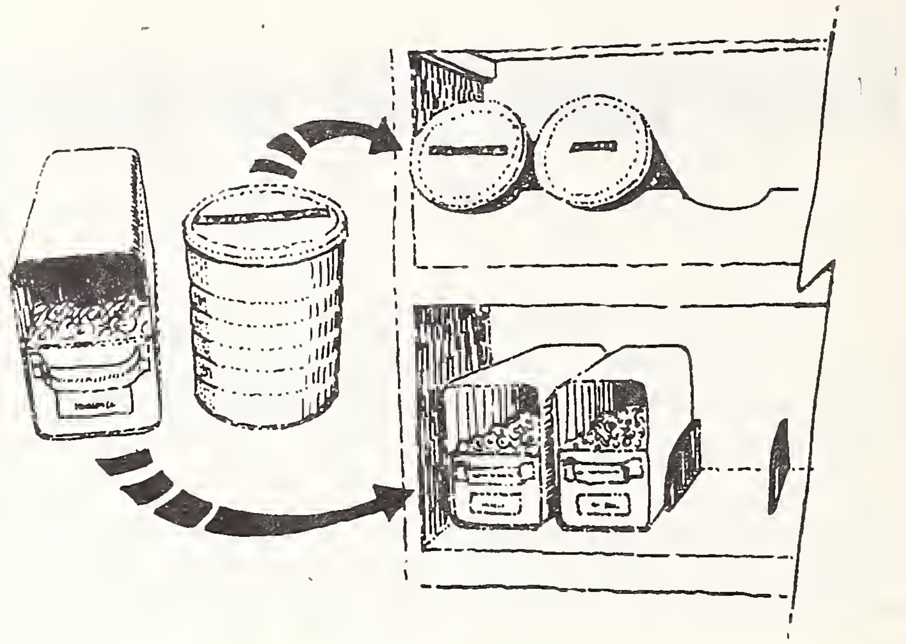
Many operators would agree that storage space at their plant is difficult if not impossible to find. There never seems to be the shelves or bins necessary to store the spare parts, fasteners and miscellaneous items so vital in a good organizational setup. Each operator draws upon his imagination to utilize every nook and cranny!

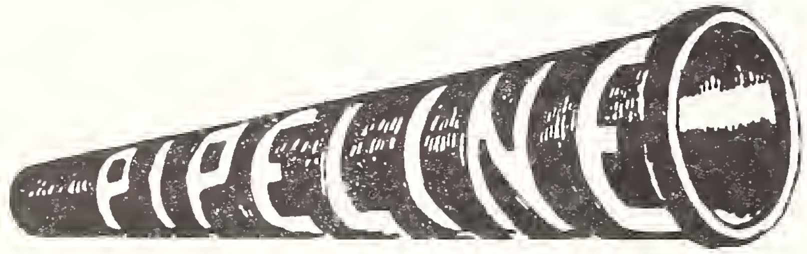
Standard stock catalog items really do not adequately adapt to our situation, and custom-made shelving and racks may be beyond our budget. I have converted coffee cans and paint thinner cans to storage containers. It is hard to beat the price of an old tin can! The wooden shelves used to hold these containers can be tailored to fit almost any unusually-sized space and the lumber does not have to be new. My only cost in fabricating this storage was time and effort.

SMALL PARTS STORAGE -- continued

I adapted gallon paint thinner cans. Using a can opener, I opened half of the container top across the top and halfway down on each side. I folded this metal flap back inside the can to give me a smooth rolled edge above the handle. These are stored like drawers on a shelf as shown in the drawings.

Coffee cans provide ideal storage without extra effort except being sure to label the plastic lid so you know what's inside without hunting each time.





JEC Seminars a Success

The Joint Education Committee of the Montana Section of AWWA and the Montana WPCA, in cooperation with the Montana Department of Health and Environmental Sciences, sponsored another series of seminars in May. The seminars were held in Billings, Helena, Havre, and Kalispell on the topic of pump packings and seals. Jim Duke of Montana Seals and Packings in Billings gave the Billings, Helena, and Havre seminars. Ed Raftery of A. W. Chesterton Co. in Seattle gave the Kalispell seminar. The information presented was most interesting and useful and Jim Duke sure kept folks laughing. If you have suggestions for future seminars, contact Jeff Hughes (755-5457) or Charlotte Jones (727-5881), the current education committee co-chairmen.

Operator Training Project

Northern Montana College received funding from EPA to demonstrate the effectiveness of specialized on-site training in improving the performance of wastewater treatment facilities. A nationwide search was conducted to identify a qualified consultant to carry out comprehensive performance evaluations at six selected Montana facilities, followed by extensive site-specific, hands-on training (composite correction program) at some of these facilities. Process Applications, Inc. of Fort Collins, Colorado was selected for the project. Initial evaluations have been done at the Miles City, Forsyth, Livingston, Kalispell, Yellow Bay, and Stevensville wastewater treatment plants. Follow-up training will begin this fall and continue throughout the next year.

Resource Library at NMC

A Water Quality Resource Library has been established at Northern Montana College for use by operators throughout Montana. The library was funded by a grant from EPA (Section 104(g)(1)--Clean Water Act). The library is located in the Math-Science Department on the NMC campus in Havre. The library includes reference books, pamphlets, slide/tape presentations, video-taped programs, and other useful information. A catalog containing a listing of material and checkout information will be available in the near future and will be sent out to operators. If you wish to use this library you can obtain more information by calling Martha Dow at 265-7821, ext. 3257 or writing Northern Montana College, Math-Science Department, Havre, Montana 59501.

Operator Certification Corner

Questions:

1. The influent flow to a sewage lagoon is 300,000 gallons per day (gpd). The lagoon is 1000 feet wide and 900 feet long and has a depth of 5 feet. Calculate the detention time in days.

2. A pump discharging at 50 psi can pump into a nearby water tower 100 feet high. True or False.

3. Why should chemicals, liquid or dry, never be mixed for purposes of water treatment?

4. If 1300 lbs. of alum are used per day in flow of 12 mgd, what is the alum concentration in mg/l?

5. Which of the following conditions when found in a water supply would tend to increase the corrosiveness of the water on metals?

   a. high alkalinity
   b. high dissolved CO_2 content
   c. low dissolved O_2 content
   d. low dissolved minerals

6. ____________________ is a common method of removing hydrogen sulfide from water.

Answers:

1. Lagoon volume in gallons:

$$1000 \text{ ft} \times 900 \text{ ft} \times 5 \text{ ft} = 4{,}500{,}000 \text{ ft}^3$$

$$4{,}500{,}000 \text{ ft}^3 \times \frac{7.48 \text{ gal}}{\text{ft}^3} = 33{,}660{,}000 \text{ gallons}$$

$$\text{Detention (in days)} = \frac{33{,}660{,}000 \text{ gal}}{300{,}000 \text{ gal/day}} = 112 \text{ days}$$

2. True. Psi is converted to feet of head by multiplying psi by 2.31 ft/psi. Hence 50 psi x 2.31 ft/psi = 115.5 ft.

3. Combining chemicals is usually uneconomical, complicates the proportioning process, and can be dangerous.

4. $$\text{lbs.} = \text{ppm (mg/l)} \times \frac{8.34 \text{ lbs.}}{\text{gal.}} \times \text{MG}$$

so, $$1300 \text{ lbs.} = \text{mg/l} \times \frac{8.34 \text{ lbs.}}{\text{gal.}} \times 12 \text{ MG}$$

$$\text{mg/l} = \frac{1300 \text{ lbs.}}{\frac{8.34 \text{ lbs.}}{\text{gal.}} \times 12 \text{ MG}}$$

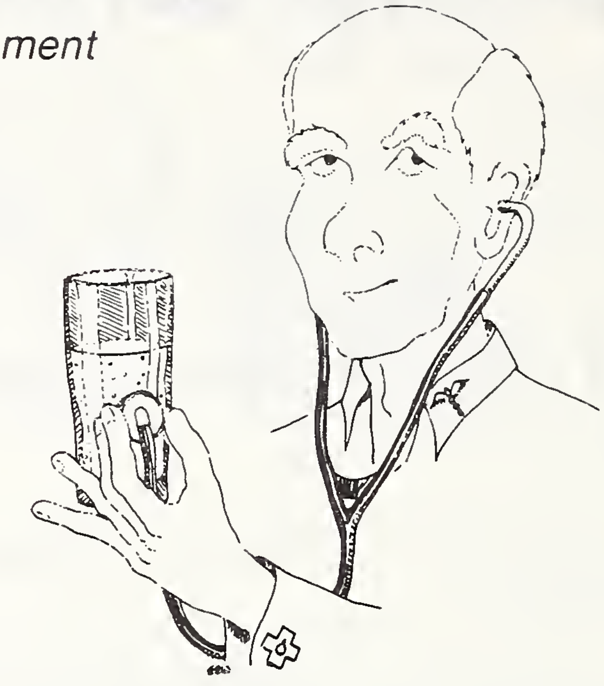
13 mg/l.

5. b.

6. Aeration.

More Important Than Doctors

Editor's Comment



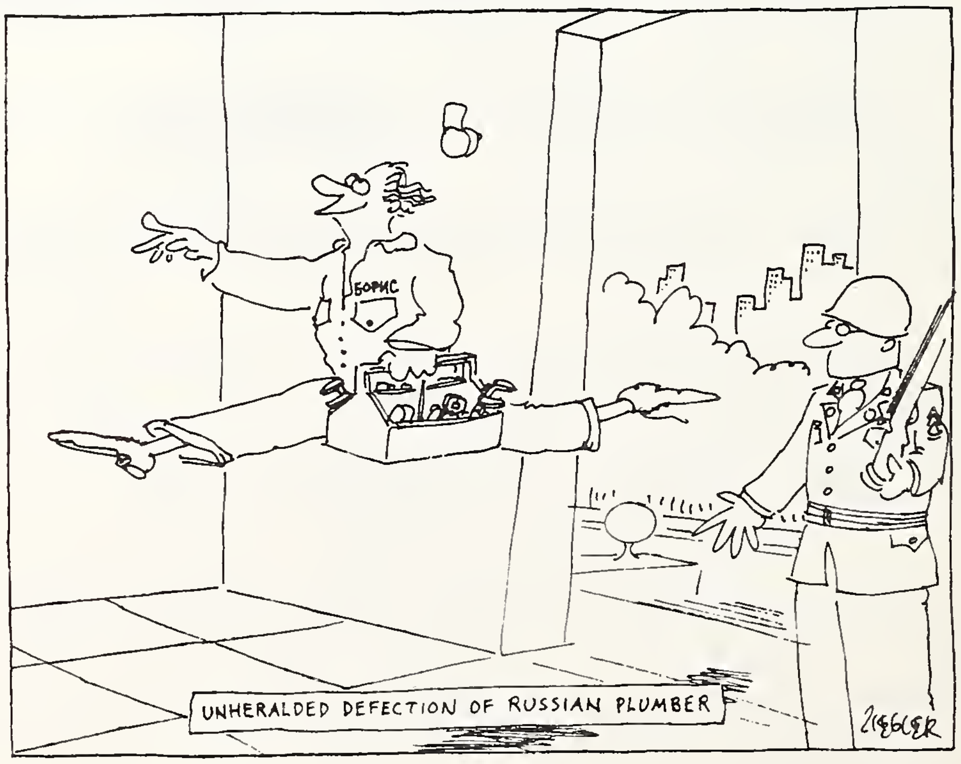
from editorial by
Ian Lisk, Editor, Water Engineering and Management

Several months ago, 29,000 British water and sewer workers went on strike. The strike lasted about five weeks. During the strike, millions of people had to boil their drinking water, and almost 100,000 homes were without water supply due to unrepaired breaks. Wastewater treatment plants didn't treat, they simply discharged into rivers.

An article in a British newspaper, The Guardian, must have tugged at the heartstrings of many a reader. Based on an interview with a 62 year old "manual" worker (the rough equivalent of an unskilled or semi-skilled operator in our lingo), it was a nostalgic look at the career of a striker unhappy at having to "come out." "His first boss was an old style municipal engineer who gave all new starters a pep talk about the value of their work--'more important than doctors, 'cause we prevented illness and they just gave medicine for it.' Always on the job he was--you'd never have a stoppage while he was there." 'None of us is important,' he said, 'but what we do is very important.'" This is the same philosophy upon which our own water/wastewater industry in the U.S. was built.

The strikers' story has an important message for us. The public health analogy can be applied wherever people live. Historically, our industry has been a somewhat forgotten one, the victim of political whims, diverted revenues, etc. Managers and workers have not been recognized for the true value of their service to society. We all know that the reality of the situation is that our water and sewer workers truly are more important than doctors.

Conserve Energy ....


БОРИС
UNHERALDED DEFECTION OF RUSSIAN PLUMBER
ZIEGLER

Water Quality Bureau
Department of Health
& Environmental Sciences
Room A206, Cogswell Bldg.
Helena, MT 59620

TO:

1,750 copies of this public document were published at an estimated cost of 46¢ per copy, for a total cost of $811.13, which includes $618.63 for printing and $192.50 for distribution.